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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/712,626	11/14/2000	Soon-Jai Khang	UOC-128D	3705
26875	7590	06/01/2004	EXAMINER	
WOOD, HERRON & EVANS, LLP 2700 CAREW TOWER 441 VINE STREET CINCINNATI, OH 45202			LANGEL, WAYNE A	
			ART UNIT	PAPER NUMBER
			1754	
DATE MAILED: 06/01/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.



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SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER

ART UNIT

PAPER NUMBER

DATE MAILED:

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☐ This application has been examined ☒ Responsive to communication filed on 4-16-04 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice of Draftsman's Patent Drawing Review, PTO-948. |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449. | 4. <input type="checkbox"/> Notice of Informal Patent Application, PTO-152. |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/> _____ |

Part II SUMMARY OF ACTION

1. ☒ Claims 1-41 are pending in the application.

Of the above, claims _____ are withdrawn from consideration.

2. ☐ Claims _____ have been cancelled.

3. ☐ Claims _____ are allowed.

4. ☒ Claims 1-41 are rejected.

5. ☐ Claims _____ are objected to.

6. ☐ Claims _____ are subject to restriction or election requirement.

7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).

11. ☒ The proposed drawing correction, filed 2-11-04, has been ☒ approved; ☐ disapproved (see explanation).

12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.

13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

EXAMINER'S ACTION

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kato et al (newly cited). No distinction is seen between the process disclosed by Kato et al, and that recited in applicant's claim 1. Kato et al disclose a heat recovery unit provided upstream of a dry electrostatic precipitator for removing dust and sulfur oxides from exhaust gas in a coal-fired boiler. (See, e.g., col.1, lines 14-34; col. 3, lines 4-27; and col. 4, lines 4-21 and 34-44.) The flue gas in the process of Kato et al appears to be sensibly cooled, since there is no indication of any condensation occurring during the cooling of the gases. In any event, it would be obvious to sensibly cool the flue gas in the process of Kato et al, since there would be no reason as to why one of ordinary skill in the art would want condensation to occur during the cooling step.

Claims 1-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al in view of Johnson et al (newly cited). Kato et al disclose a heat recovery unit provided upstream of a dry electrostatic precipitator in a process for removing dust and

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sulfur oxides from a flue gas. (See the passages referred to hereinbefore.) The difference between the process recited in applicant's claim 1, and that disclosed by Kato et al, is that Kato et al do not disclose that the flue gas should be sensibly cooled. Johnson et al disclose at col. 2, lines 48-54 that neither heat exchanger of Kato et al is of the condensing type and that this is consistent with other teachings which appear to suggest utilizing precipitating heat exchangers in a dry environment only. It would be obvious from Johnson et al to sensibly cool the flue gas in the process of Kato et al, since it is apparent from col. 2, lines 48-54 of Johnson et al that the heat exchangers of Kato et al should be employed in a dry environment only. Regarding claims 2 and 10, it would be obvious from Johnson et al to contact the flue gas of Kato et al with an alkaline material, since Johnson et al teach at col. 4, line 67 to col. 5, line 28 that contacting the flue gas with an alkaline material cleans certain chemicals from the flue gas. Regarding claims 3 and 4, it would be further obvious from Johnson et al to contact at least a portion of the dust- reduced flue gas and reaction product with a collecting liquid, since Johnson et al disclose at col 3, lines 14-16 that the condenses liquids will be either acidic or basic. It would be obvious to contact such acid or base with a base or acid, respectively, to neutralize the acid or base to form water and the corresponding salt, for environmental and technical reasons. Such base or acid contacted with the acid or base of Johnson et al would constitute a "collecting liquid". Regarding claims 5-9 and 11-38, it would be obvious from Johnson et al to remove pollutants other than dust and sulfur oxides from the flue gas of Kato et al, since Johnson et al suggest at col. 1, lines 18-21 that particulates, sulfur oxides/acid gases "and other contaminants" may be

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removed. It would also be obvious to form the various products as recited in the dependent claims by such steps as increasing the pH, since such steps are conventional in and of themselves.

Claims 1-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, there is no antecedent basis "the dust" in line 4, since the flue gas does not necessarily contain dust in reciting that it contains "dust or a pollutant". In claim 39, there is no antecedent basis for "ammonia or an ammonia derivative" in line 8, since the "alkaline material" recited in line 3 would not necessarily include ammonia. In claim 27, there is no antecedent basis for the "pollution-laden liquid" (as opposed to "pollutant-laden liquid"). It is also indefinite as to whether the features recited in the "thereby" clauses in the dependent claims would constitute positive recitations of such features, especially since the features recited in these "thereby" clauses are not necessary results of the recited process steps. For example, regarding claims 14 and 20, raising the temperature or pH of the liquid would not necessarily result in the liberation of ammonia or an ammonia derivative, since the claims do not require that the liquid contain ammonia or an ammonia derivative.

Upon reconsideration, the restriction requirement is withdrawn.

The Keener Declaration filed on February 11, 2004 has been considered, and is considered sufficient to establish that Fig. 1 does not constitute "prior art". Accordingly the rejection over applicant's "admitted prior art" is withdrawn.

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This application apparently discloses allowable subject matter (i.e. regarding the subject matter of claims 39-41).

Applicant is invited to amend the title to delete "and apparatus".

Gehri et al, Dorr et al and Finfer et al are made of record for disclosing methods for removing pollutants from gases by contact with aqueous alkaline absorption liquids.

WO 94/13391 is made of record for disclosing the introduction of urea to a combustion effluent, followed by passage through an electrostatic precipitator.

Any inquiry concerning this communication should be directed to Wayne Langel at telephone number 571-272-1353.

A handwritten signature in cursive script that reads "Wayne A. Langel".

Wayne Langel
Primary Examiner
Art Unit 1754